Bureau
of
Land
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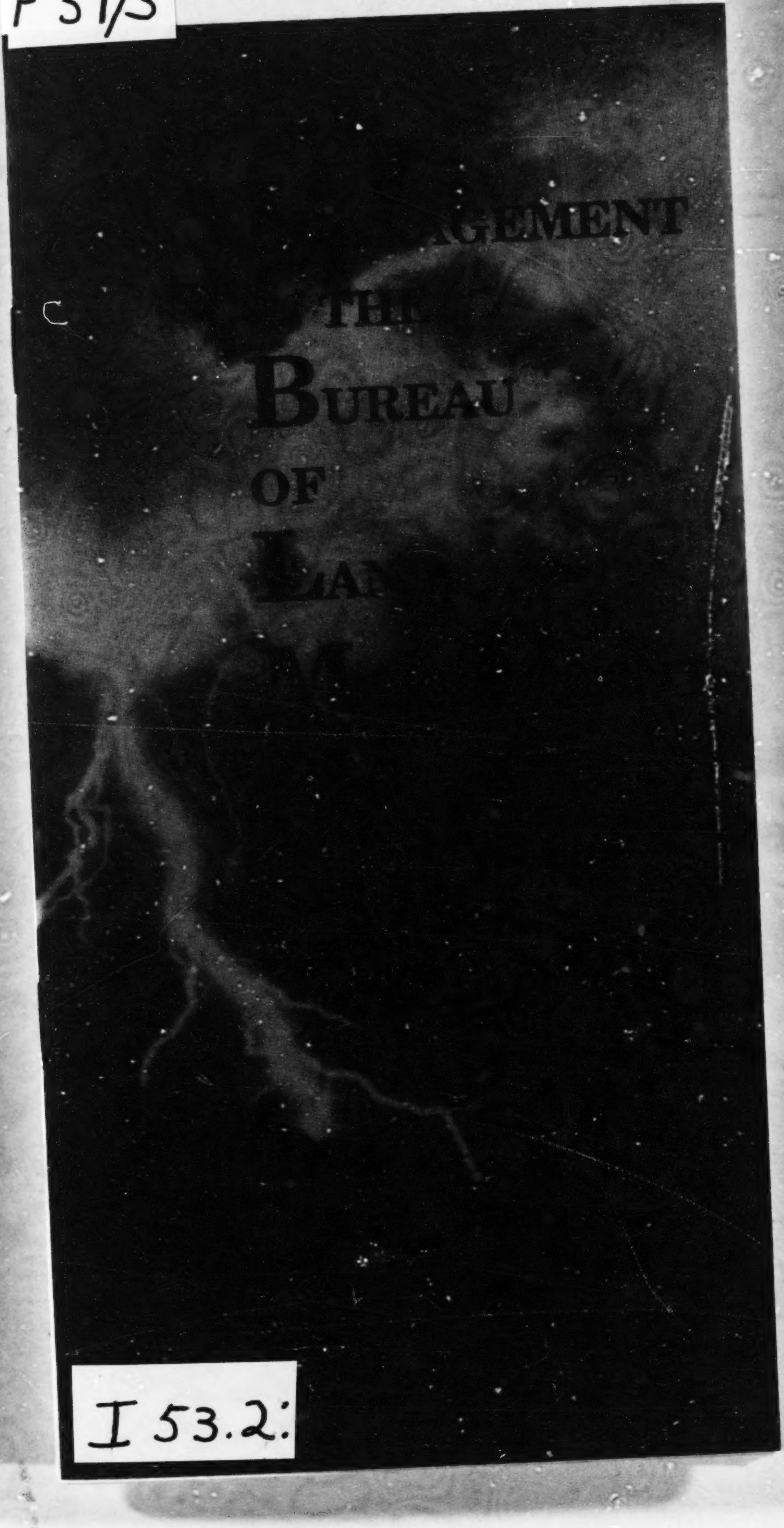

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# FIRE MANAGEMENT IN THE BUREAU OF LAND MANAGEMENT

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## *INTRODUCTION*

Congress created the Bureau of Land Management in 1946 within the Department of the Interior, combining the former functions of the Grazing Service and the General Land Office. Today, BLM manages 272 million acres of public lands, as well as the mineral estate underlying another 300 million acres administered by other agencies or private interests. These lands are primarily in the 12 western states, including Alaska, although small parcels are also scattered across the eastern states.

When Congress enacted the Federal Land Policy and Management Act of 1976, it established a legislative mandate for managing public lands and made BLM a true multiple-use agency.

The BLM is responsible for the management of public lands and resource values in a manner to best serve the American people. Management is based upon the principles of multiple use and sustained yield, taking into account long-term needs of future generations for renewable and nonrenewable resources. These resources include recreation, range, timber, minerals, watershed, fish and wildlife habitat, wilderness, and natural, scenic, scientific, and cultural values. Fire Management is a component of BLM's multiple-use management program.

## *FIRE MANAGEMENT*

BLM's fire management program is divided into two areas -- **wildfire suppression** and **prescribed fire.**

## *WILDFIRE SUPPRESSION*

Wildfire suppression includes all aspects of preparing for, detecting, and fighting wildland fires, and for rehabilitation of severely burned areas.

On an average, over 2,700 wildfires occur annually on BLM-administered lands, burning nearly 1 million acres.

During more severe years -- those with drought, more wind, or above normal lightning -- these figures can increase dramatically. For example, 3,100 fires occurred in 1985 and burned approximately 2 million acres.

Nationally, 63 percent of wildfires are lightning caused and 37 percent are human caused. Individuals causing wildland fires can be prosecuted to recover the costs of fighting the fire and rehabilitating the environment. Even the cost of suppressing a small, one-acre fire can exceed several thousand dollars.

In an average year, BLM spends $90 million suppressing wildfires and $5 million in emergency fire rehabilitation.

## *PRESCRIBED FIRE*

BLM also uses fire under prescribed conditions to help achieve land management objectives, conducting an average of 700 prescribed fires each year.

All prescribed fires are carefully planned and carried out by trained specialists who set very strict limits (prescriptions) for managing a prescribed fire in a specific area. Criteria include the air temperature, wind speed and direction, and moisture content of the vegetation to be burned. The limits for each of the criteria depend on factors such as the amount of slope in the prescribed fire area, kinds and amounts of vegetation to be burned, and the types of fire barriers that can be used or constructed.

Approximately 100,000 acres of BLM-administered land are treated annually with fire. Prescribed fires can remove old, woody vegetation, making room for growth of more nourishing forage for livestock and wildlife. The fire may be designed to burn a mosaic pattern, leaving patches to serve as cover for some wildlife species. Prescribed fire can also be used to prepare a site for reseeding or planting seedlings. Consistent, planned use of prescribed fires can also reduce the natural accumulation of dead vegetation, thus preventing eventual conflagrations fed by years of fuel buildup.

## *INTERAGENCY COORDINATION*

Wildfires do not respect property lines, so agencies that provide wildland fire protection depend on interagency coordination and cooperation to perform suppression activities.

Interagency activities are best illustrated when a wildfire escapes the initial attack performed by the local responsible agency, and specialized suppression teams are sent to manage the suppression effort. These suppression teams, commonly referred to as overhead teams, consist of trained men and women from Federal, state, and local wildland management agencies. They work under the Incident Command System, an interagency system designed to give specialists from various agencies a common ground so they can immediately function together as a fire management team.

Federal, state, and local agencies exchange protection responsibility on millions of acres through contracts and agreements to improve effectiveness and reduce cost by consolidating the workload. They also share specialized firefighting resources, such as aircraft and communications systems.

BLM protects approximately 386 million acres of tundra, grass, brush and timber lands in the United States. A major share of this protection (186 million acres) occurs in Alaska, where, in addition to protecting BLM-administered public lands, BLM protects National Park Service, Fish and Wildlife Service, Bureau of Indian Affairs, Native, and some state lands.

| | BLM Acreage Protected | Other Agency Acreage Protected | Total Acreage Protected |
|---|---|---|---|
| | (All Numbers in Millions) | | |
| AK | 65.0 | 121.0 | 186.0 |
| AZ | 22.1 | 22.1 | -------- |
| CA | 18.6 | 0.74 | 22.1 |
| CO | 8.7 | 0.56 | 19.34 |
| ID | 11.9 | 0.26 | 12.52 |
| OR | 16.0 | 0.05 | 16.05 |
| MT | 9.3 | 1.58 | 10.88 |
| NV | 48.7 | 5.0 | 53.7 |
| NM | 12. | -------- | 12.9 |
| UT | 24.0 | 1.2 | 25.2 |
| WY | 17.8 | -------- | 17.8 |
| | -------- | -------- | -------- |
| | 255.0 | 130.75 | 385.75 |

## *FIRE MANAGEMENT ORGANIZATION*

Fire management is a component of the Bureau's multiple-use mission at every level of the organization.

o *The national office in Washington, D.C., is responsible for budget, policy, national interagency activities, and congressional affairs.*

o *State Offices coordinate regional policies and interagency activities for the districts within a state.*

o *Districts are responsible for providing the operational or "hands on" fire suppression and prescribed fire work. Therefore, it is at the district level where most of the equipment and personnel are placed.*

There are two additional components to BLM's fire management organization.

- *The Boise Interagency Fire Center (BIFC), located at Boise, Idaho.*
- *The Alaska Fire Service, headquartered at Fairbanks, Alaska.*

## BOISE INTERAGENCY FIRE CENTER

Established in 1965, the goal of the Boise Interagency Fire Center is to provide the nationwide coordination of fire support activities among Federal and state firefighting agencies. The Fire Center is also called upon to help during many types of natural disasters when local, state, and regional resources are exhausted.

BLM is the host agency at BIFC, and shares administration of the Center with four other Federal land management agencies -- the Bureau of Indian Affairs, the National Park Service, the Fish and Wildlife Service, and the Forest Service.

The National Weather Service is the sixth cooperating agency at BIFC. The Department of the Interior's Office of Aircraft Services also has headquarters on site.

In 1987, when lightning activity in late August started more than 2,000 fires and burned over 725,000 acres in less than two weeks, BIFC mobilized 22,500 personnel in less than 10 days, moving 645 crews from wildland fire agencies throughout the U.S. and nearly 45 tons of supplies to the fire.

## ALASKA FIRE SERVICE

In 1981, the BLM established the Alaska Fire Service, headquartered at Fairbanks, to manage fire on the 186 million acres of Interior Department and Native Claim lands in Alaska. The Alaska Fire Service also maintains an international agreement with Canada, providing for the detection and suppression of boundary fires between Alaska and the Yukon Territory. The Alaska Fire Service consists of nearly 100 career personnel and 300 summer seasonal personnel. To supplement the organization, 73 16-person emergency fire suppression crews are organized and trained. These crews are also sent to the Lower 48 States to assist when numerous large wildfires reduce the availability of local firefighting resources.

The Alaska Fire Service is an air-oriented organization because of the immense size of the roadless areas in the state. Most initial attack activities are performed by smokejumpers and helitac crews with support from aerial retardant tankers.

## FIREFIGHTING RESOURCES

The BLM employs over 2,000 firefighters, operates approximately 400 fire engines and over 50 aircraft and dispatches from 150 initial attack fire stations.

**Some of the firefighters are organized to perform specialized duties such as hotshot crews and smokejumpers.**

o *Twenty-person hotshot crews are made up of specially trained and skilled firefighters who are used both in initial attack suppression efforts and on large fires in the most critical and high risk areas.*

o *BLM also uses smokejumpers who are the primary initial attack firefighting force in Alaska. The smokejumpers are very skilled and mobile firefighters who may be moved to fight fires all over the United States when assistance is needed.*

## *FIRE REHABILITATION*

**Some wildfires leave large areas of soil exposed that are subject to accelerated erosion. When emergency rehabilitation of burned lands is appropriate, three actions are usually taken:**

o *Water bars, or temporary water diversion structures, are constructed to prevent the formation of gullies.*

o *Fences are constructed to keep livestock from grazing and trampling any resprouting or reseeded vegetation.*

o *Quick-growing plants are often seeded to reestablish vegetative ground cover.*

**Approximately 115 wildfires require emergency rehabilitation annually at a cost exceeding $5 million.**

## *WILDLAND URBAN INTERFACE*

A growing challenge facing all firefighting agencies is the increasing number of homes and subdivisions built in or adjacent to wildlands. Many people have moved into the wildlands to get away from the urban setting, but few understand that fire protection in rural areas is not usually provided by year-round fire departments.

BLM and most other Federal wildland firefighting agencies are charged with protecting the public resources. But when wildfire threatens homes, fire managers are presented with the challenge of performing their mission of natural resource protection, and attempting to protect private structures.

Homeowners in the interface must take responsibility for reducing fire hazards on their property and plan for their own public or private rural fire protection. Just a few examples of the steps homeowners can take to improve residential fire safety include:

o *Stacking firewood at a safe distance uphill from the home.*

o *Clearing a primary fuel break around structures by keeping a green lawn, or other fire -resistant ground cover.*

- *Using resistant roofing and building materials.*

## SPECIAL PROGRAMS

BLM is a leader in the development of firefighting technology. Several special programs have been nationally recognized.

- **Initial Attack Management System ( AMS)**

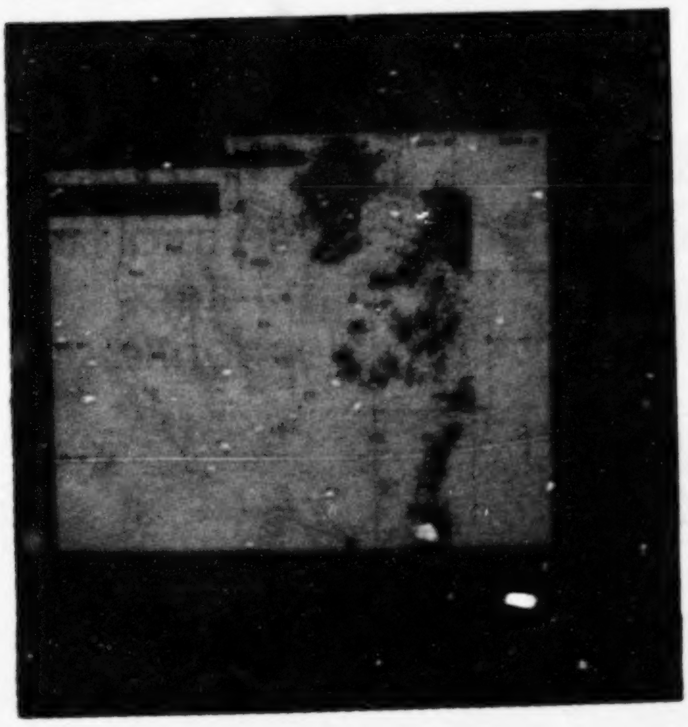
The IAMS is a computerized system designed to provide intelligence to fire managers to more effectively detect fires and dispatch initial attack forces. If the opportunity exists to attack fires when they are small, chances of successfully suppressing them with the initial attack force is high and results in the final suppression cost being significantly lower. The basic IAMS system consists of three sub-systems:

1) The computer hardware and software linking the systems together with fire fuel data and fire behavior modeling.

2) Automatic Lightning Detection System (ALDS)

3) Remote Automatic Weather Stations (RAWS)

- **Automatic Lightning Detection System (ALDS)**



The ALDS is a network of remote sensing devices that detect and plot cloud-to-ground lightning strikes. It is capable of detecting up to 90 percent of all strikes occurring in the western states and Alaska. Information from BLM's ALDS network is now being sent to the

State University of New York (SUNY) at Albany, where it is providing vital data for developing a national lightning detection system.

- **Remote Automatic Weather Stations (RAWS)**

RAWS are self-contained, meteorological collection devices placed on public lands throughout the West. When completed, there will be over 330 stations, strategically placed to provide optimal coverage of public lands. RAWS stations collect weather data, including precipitation, wind speed and direction, air temperature, fuel temperature, relative humidity, and barometric pressure. The data is summarized on an hourly basis and beamed through a satellite system for distribution to fire managers.

- **Fire Retardant Foams**

BLM has been the leader in developing foam application equipment for use from both the ground and the air. Foam suppresses fires by cooling, smothering the flame by keeping oxygen away from the fuel, or acting as a wetting agent or reflective surface. Foam increases the efficiency of water by helping it to penetrate fuels, therefore requiring less water to fight fire. Because of foam's expansion capabilities, a fire engine with a 200-gallon tank can provide much more than 1,000 gallons of foam.

### o Fire Effects Information System

BLM, working closely with the Forest Service's Intermountain Fire Sciences Laboratory in Montana, is developing a computer-based fire effects information system. When completed, it will provide the latest available data on the impacts of fire on plant and wildlife species.

### o Smoke Management

Smoke management is the science of reducing the amount of smoke created in a prescribed fire, and avoiding adverse off-site impacts on public health, transportation and visibility. This is accomplished by planning the burn under wind and atmospheric conditions which disperse the smoke rapidly and direct the plume away from smoke sensitive areas. BLM has taken the lead in developing a computer model to predict smoke amounts and movements. The model is used by fire managers to maintain air quality standards and assure highway safety.

### o Agricultural Aircraft

Recent research and testing has shown that there are many initial attack situations where modified crop-dusters can be effective in fighting fires. Although they carry smaller loads of fire retardant or foam than conventional airtankers, crop-dusters are more maneuverable, more economical, and faster at reloading and returning to the fire because they are capable of landing on local landing strips that are shorter and often not paved.

o **Aerial Equipment**

BLM smokejumpers spent several years testing and improving the rectangular, Ram-air parachute. The Ram-air has been chosen by the Bureau because it is more maneuverable, more effective in higher wind and can have a slower rate of descent than round parachutes. It also allows for more flexibility and mobility because it can be packed in the field.

BLM smokejumpers have also developed expertise in heavy paracargo systems and deliver more supplies by parachute than any other civilian agency. Paracargo specialists in Alaska have dropped over 1.5 million pounds of supplies and fuel to firefighters in a single season.

## *EMPLOYMENT OPPORTUNITIES*

BLM hires people with a wide range of skills for fire-related positions. These include seasonal firefighting jobs on engines, hand crews, and helicopters; smokejumpers; and personnel for operational support positions such as dispatching, ordering supplies and timekeeping. Professional fire managers are also hired and usually have an academic background in the biological sciences.

Individuals interested in applying for fire management jobs should contact their local BLM office or write:

Bureau of Land Management
Personnel Office
P.O. Box 25047
Denver, Colorado 80225-0047